Painting a One-Off QR Code on a Large Surface

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TOOLS:

- Flat detail paintbrush (1)
- Liquid dish washing soap (1)
- Paint, two colors (1)
- Stiff bristle brush (1)
- Wide paintbrush (1)

PARTS:

- Planar surface (1)

SUMMARY

If you want to share something with the technological elite, there's no better way than the QR code. Very dense and durable, it's also "platform agnostic." There exist several methods to make a code stencil, but they either require time or a laser CNC table.

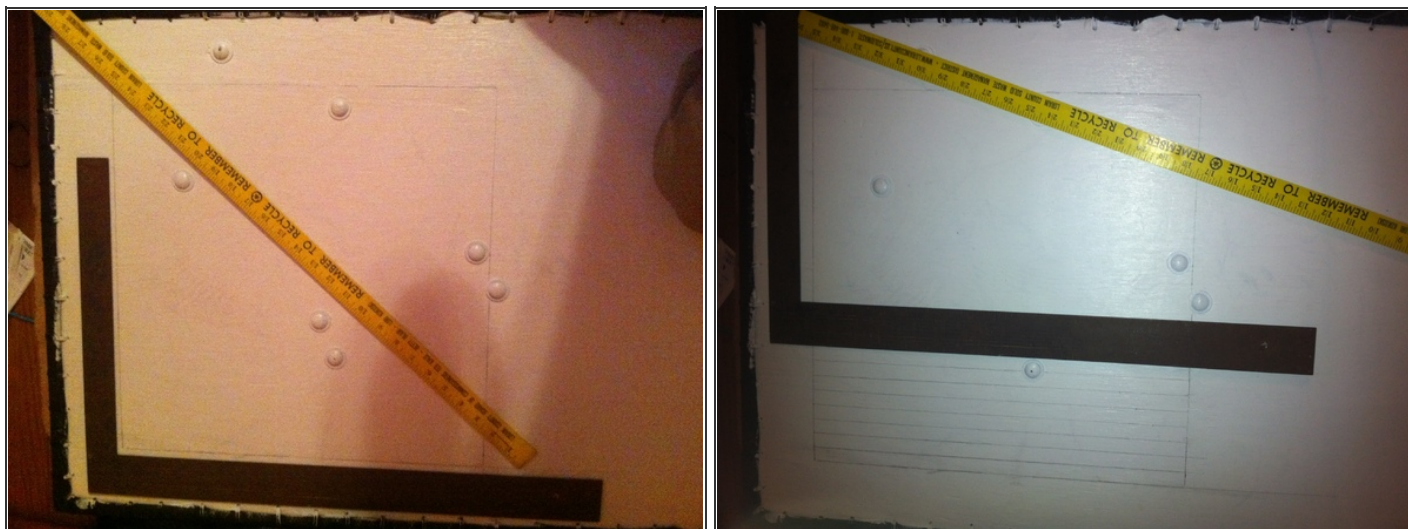## Step 1 — Painting a One-Off QR Code on a Large Surface

- So you want to put a QR code on something. You may want to research QR codes on Wikipedia and the sites it lists as references. QR codes can have 7%-30% ECC, but require a 'quiet zone' of 4 bits around the code itself. The website I used to make my code uses 25% ECC and the address encoded makes a 25x25 bit code.

Step 2

- Clean your planar surface. QR codes won't work as well if the texture of the material obscures bits when viewed from angles other than straight on. With 25% ECC, I have a bit of leeway. The carriage bolts in my shield presented no real problems.
- A stiff bristle brush and dishwashing detergent helped, but the surface was still quite worn. Paint it white, or at least a solid light color.

Step 3

- Measure the width of the area you're going to paint on. My shield has about 22 inches of white space. The QR code I wished to paint was 25 bits wide, plus 4 bits quiet zone on each side, resulting in 33 bits on a side. I forget how, because I had probably been drinking, but my bit sizes needed to be about 0.675". I thought to use a divider to make blocks about that size, but my dad thought of a better method.

- Draw the box you want the QR code portion to exist in. Extend the top and left lines beyond the box. Align a yardstick from the upper right corner to the extended line with the 25 inch mark on the corner. Make a dot every inch. Use an L square to draw a line perpendicular to a box bounding line for all 25 dots across the box.

Step 4

- Now do the same thing 90° from the first set of lines. Ta-da! A grid! You can check for regularity across this grid with a caliper or divider. Set the jaws to a random square across its diagonal line. Check other squares randomly. It would ideally be identical, but it probably won't be. If it's a few millimeters, you'll be fine. Use a Mr. Clean magic eraser (foamed melamine sponge) to correct any mistakes.

Step 5

- Print your code from a web-based QR code generator, and paint your code onto the surface! I started from the bottom left, because I'm left-handed. This kept my hand out of the fresh paint.

Step 6

- At this point, the entire code should be painted, and graphite will be smeared everywhere. Use a wet foamed melamine sponge to scrub off all the unused grid lines. Then scrub the entire surface again with a stiff bristle brush and dishwashing detergent. In the end, any dark paint not well adhered to the light paint will scrub off. Also, dark paint over graphite lines will be removed.

Step 7

- Re-paint areas black that scrubbed off due to too-thin application of paint or removal of graphite grid lines.

Step 8

- At this point, you can touch up with light paint in areas where you went too far. You could apply a clear-coat to protect the whole area. It's up to you. Note that I've taped an envelope across the code. It still scans instantly, courtesy of ECC. If you wanted, you could paint that area with non-digital information to enhance human readability.

Good for identifying yourself in the nerdiest way possible.

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